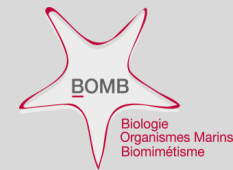




SHOULD I STAY OR SHOULD I GO?

Behavioral responses of mutualistic
coral-dwelling crustaceans to host
bleaching

Killian Ver Hoeye (PhD student)
killian.verhoeye@umons.ac.be

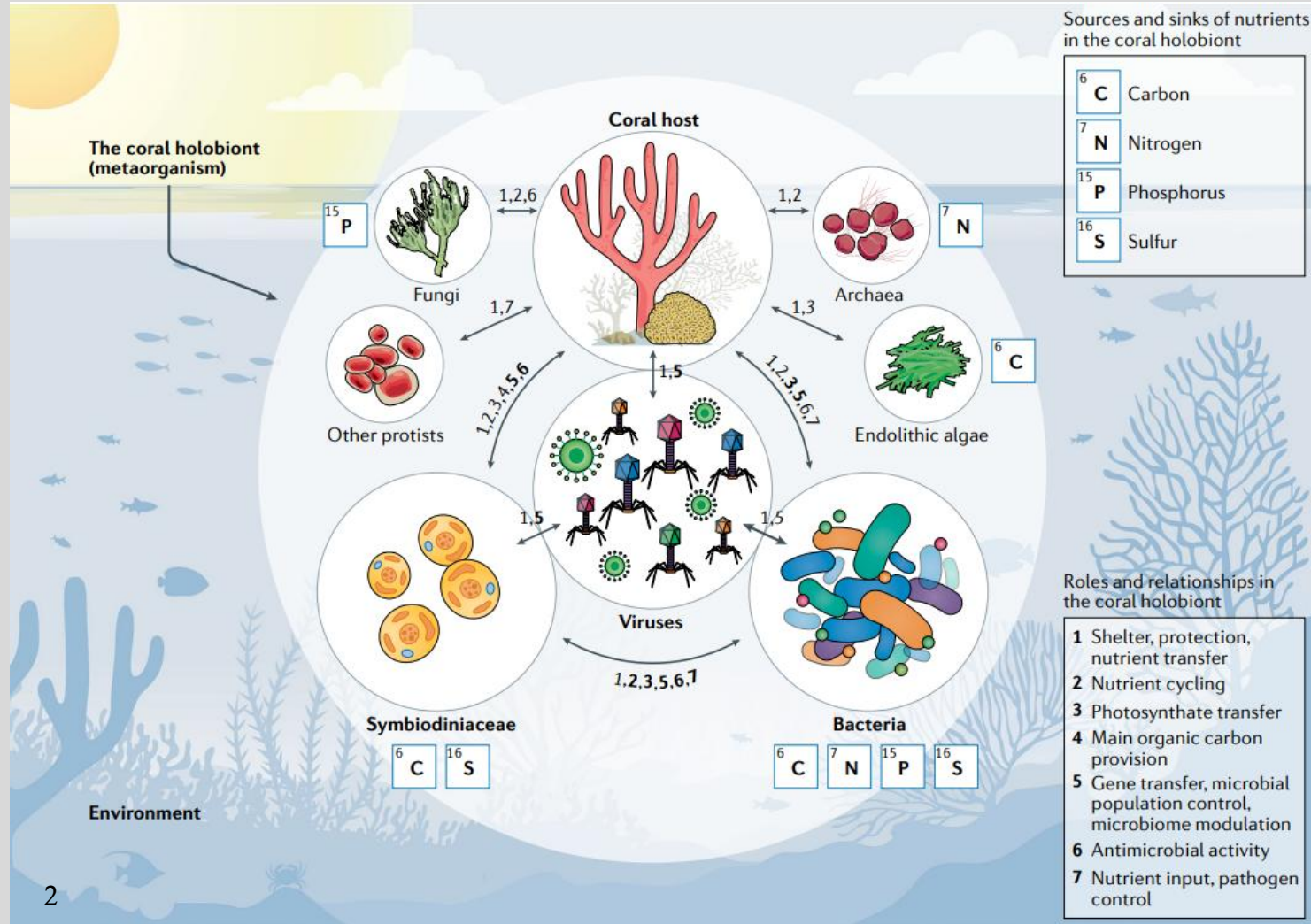


BACKGROUND – The coral holobiont



Macro-invertebrates

More than **850**
coral associated
invertebrate
species¹



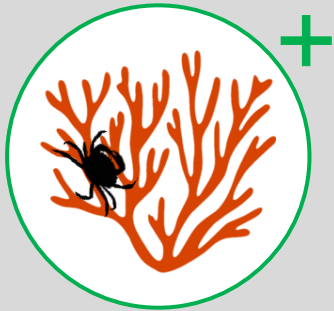
‘Symbiodiniaceae’
→ 803 outputs

‘Coral-dwelling invertebrates’
→ 75 outputs

BACKGROUND – Ectosymbionts: key roles



Commensalism



Mutualism



Parasitism

BACKGROUND – Ectosymbionts: key roles – Mutualism

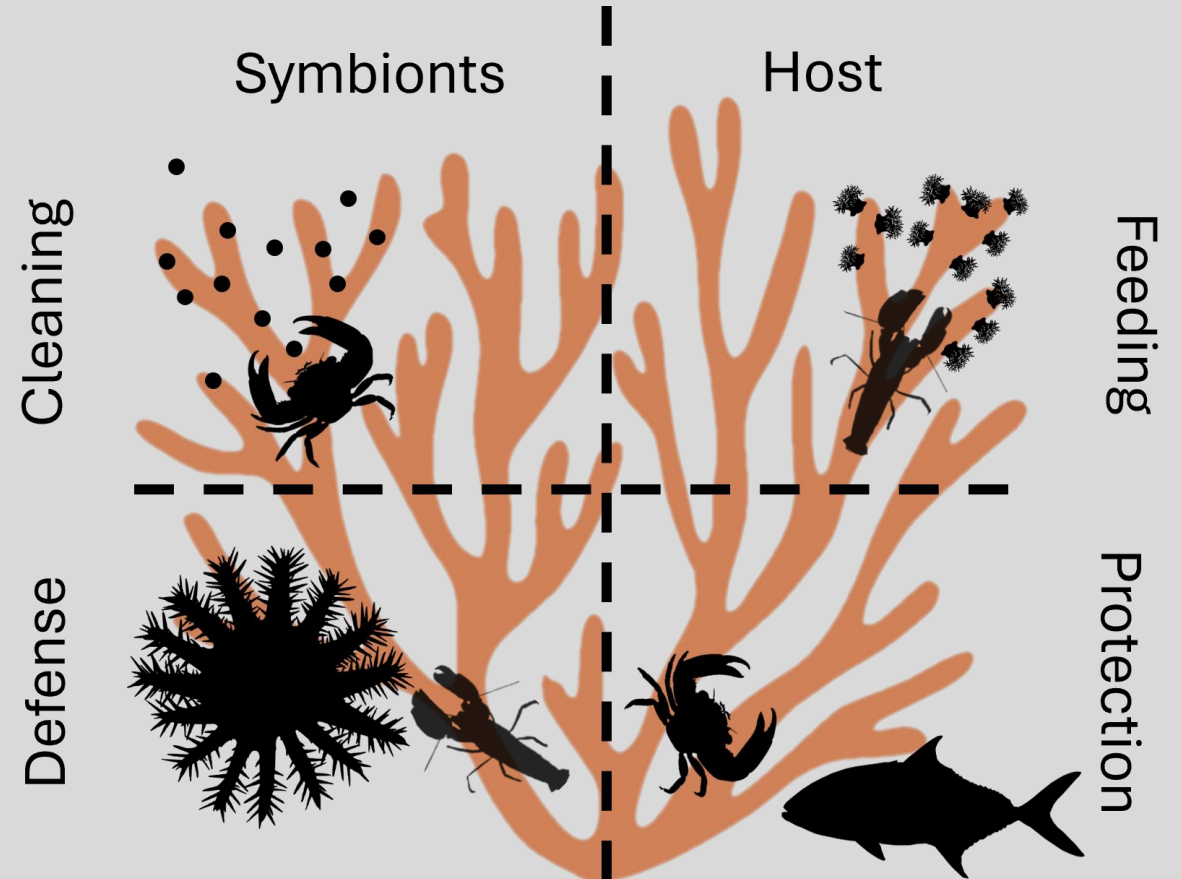
Pocillopora acuta



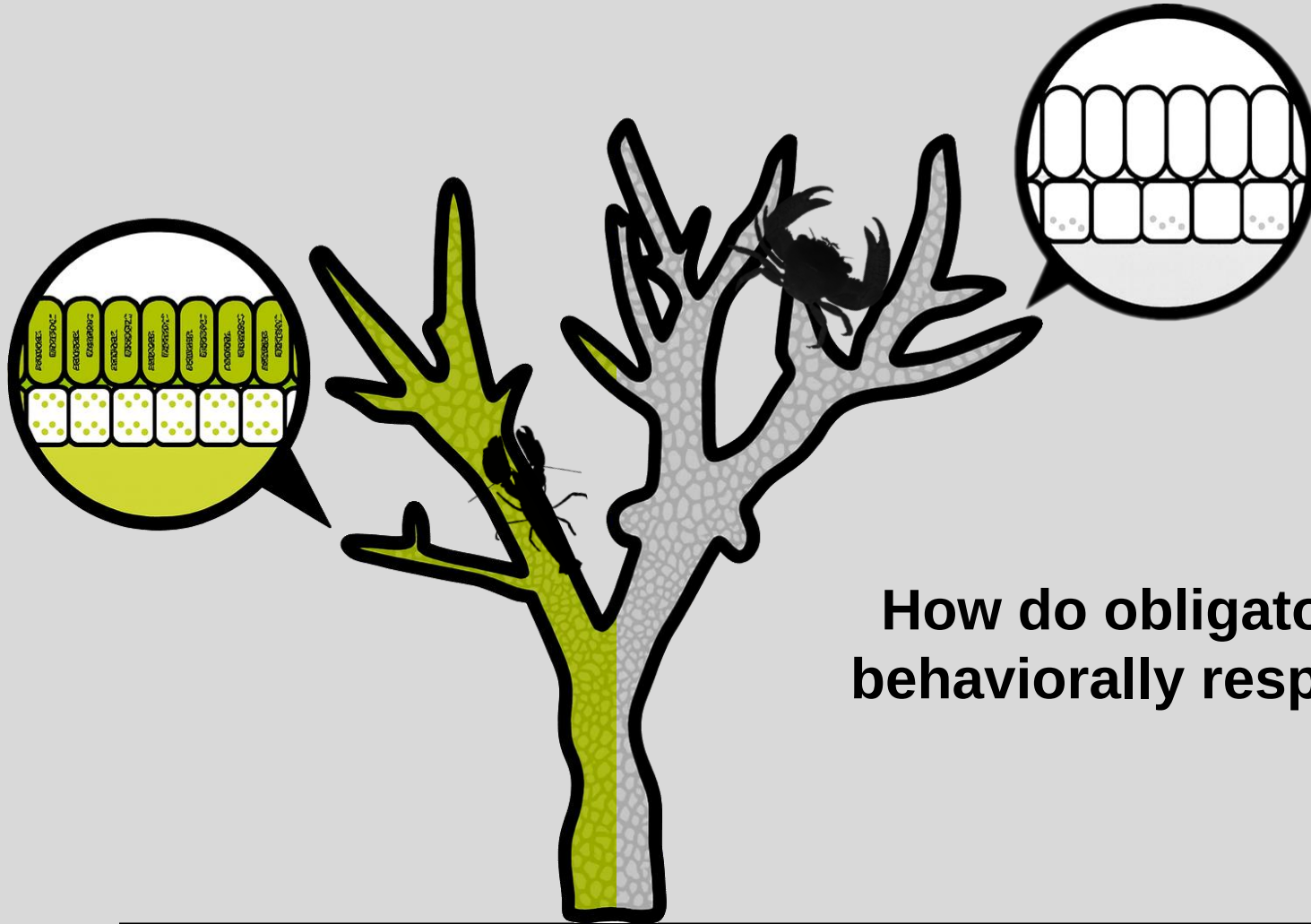
Trapezia serenei



Alpheus lottini



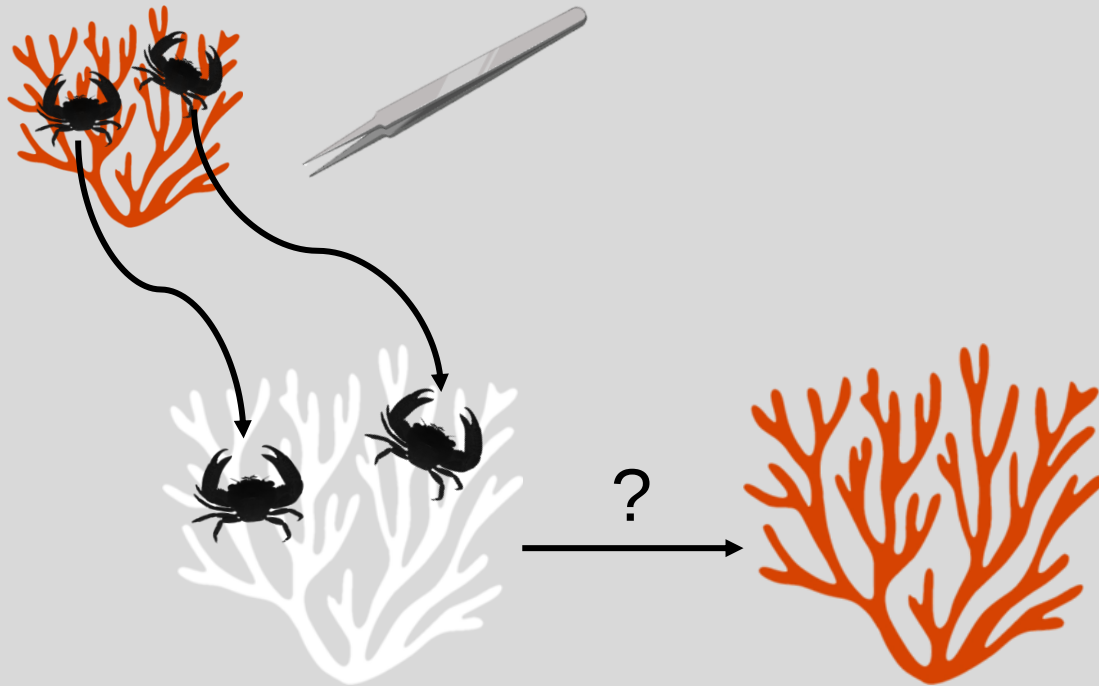
Issues – Coral hosts are bleaching



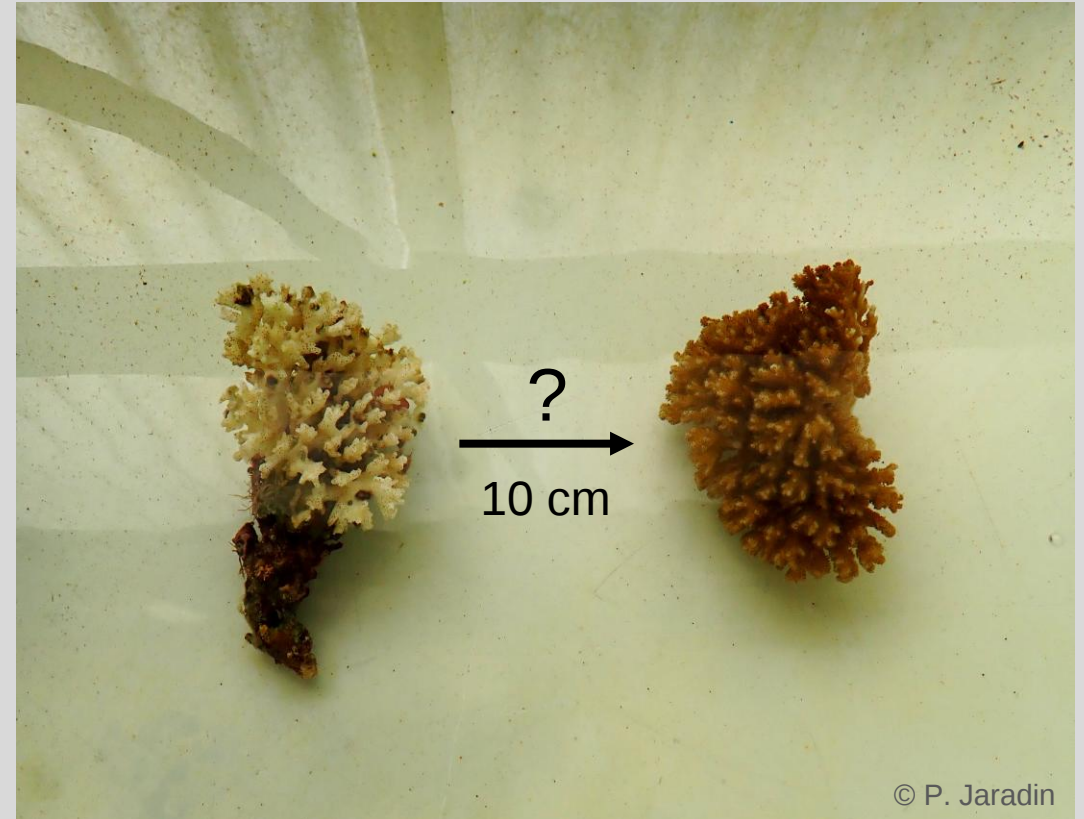
How do obligatory coral-dwelling crustaceans behaviorally respond when their host bleaches?

Methods

Emigration from a bleached to a healthy host

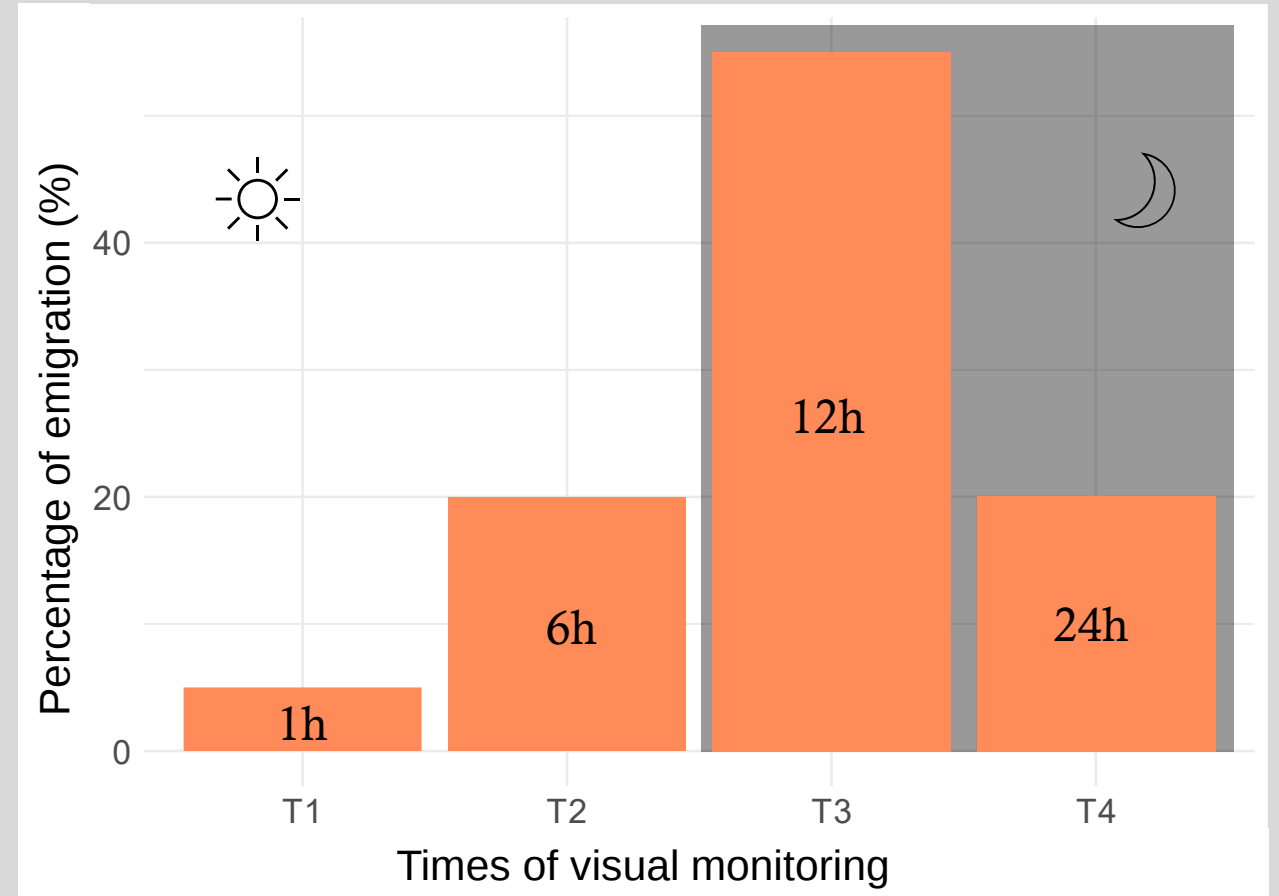
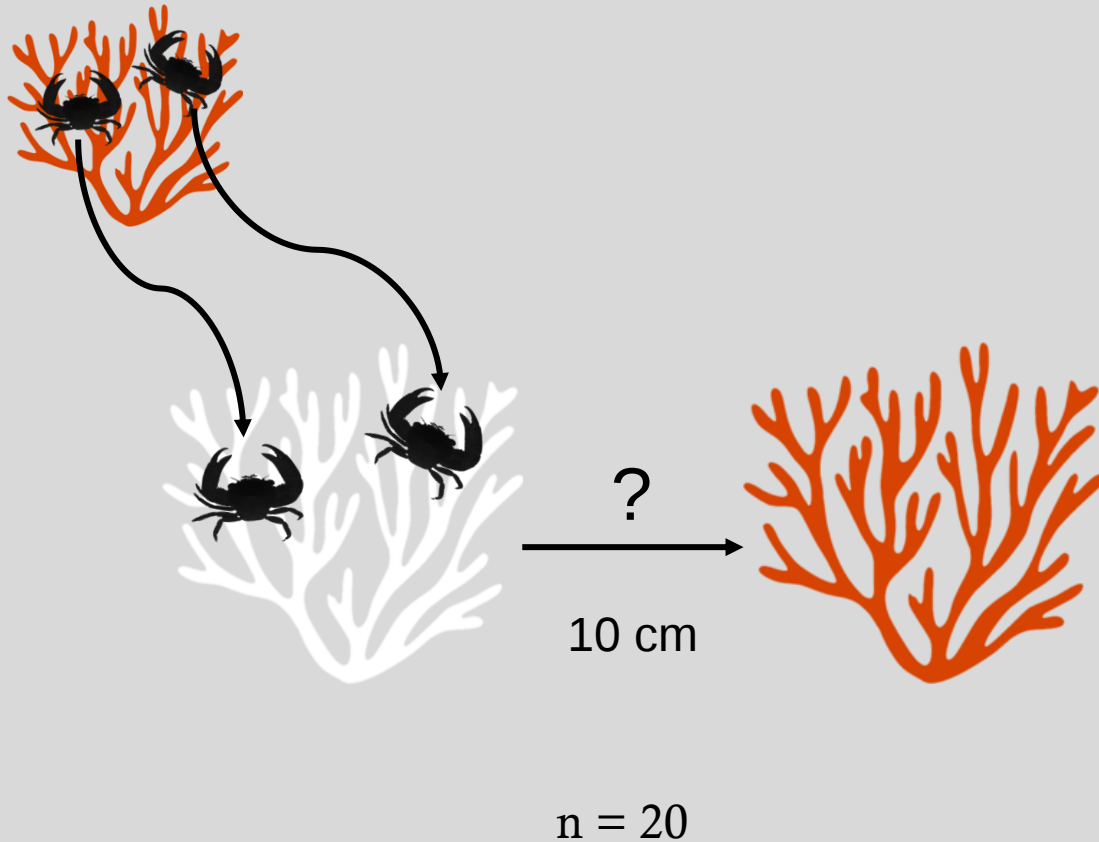


n= 20



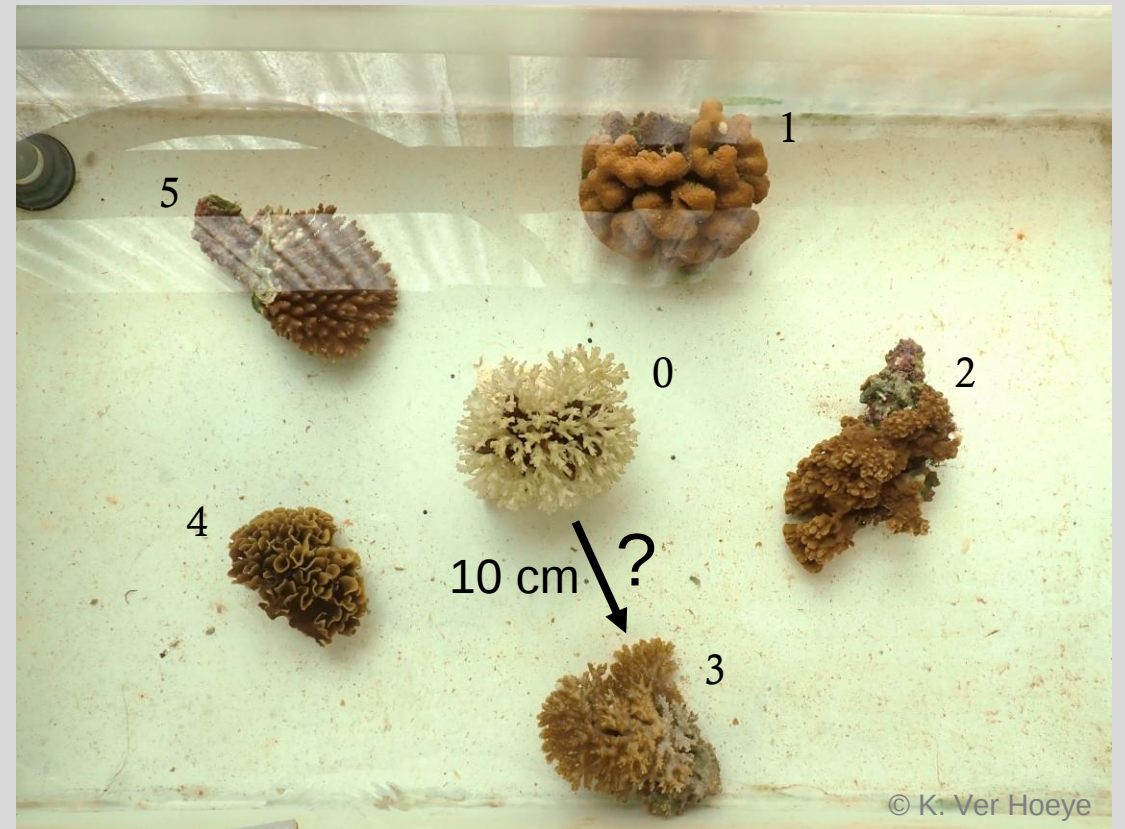
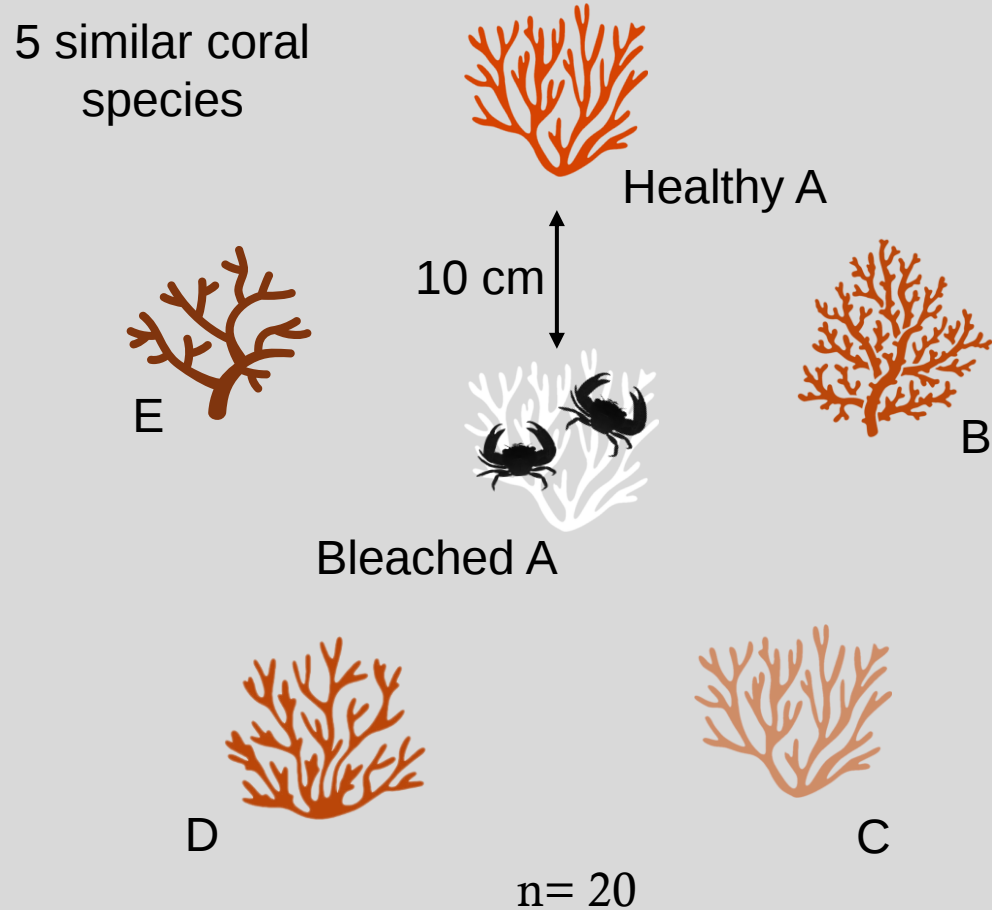
Results and discussion

Emigration from a bleached to a healthy host



Methods

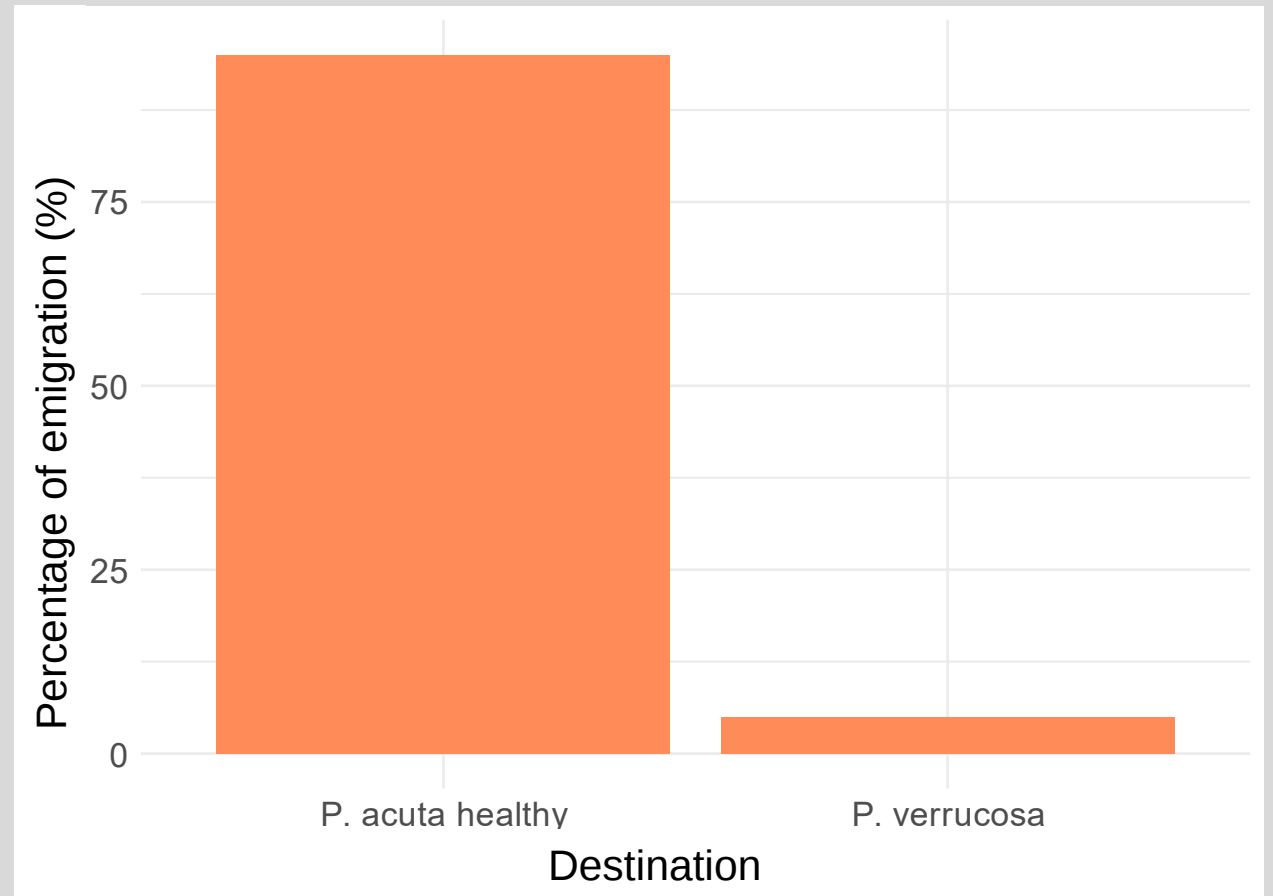
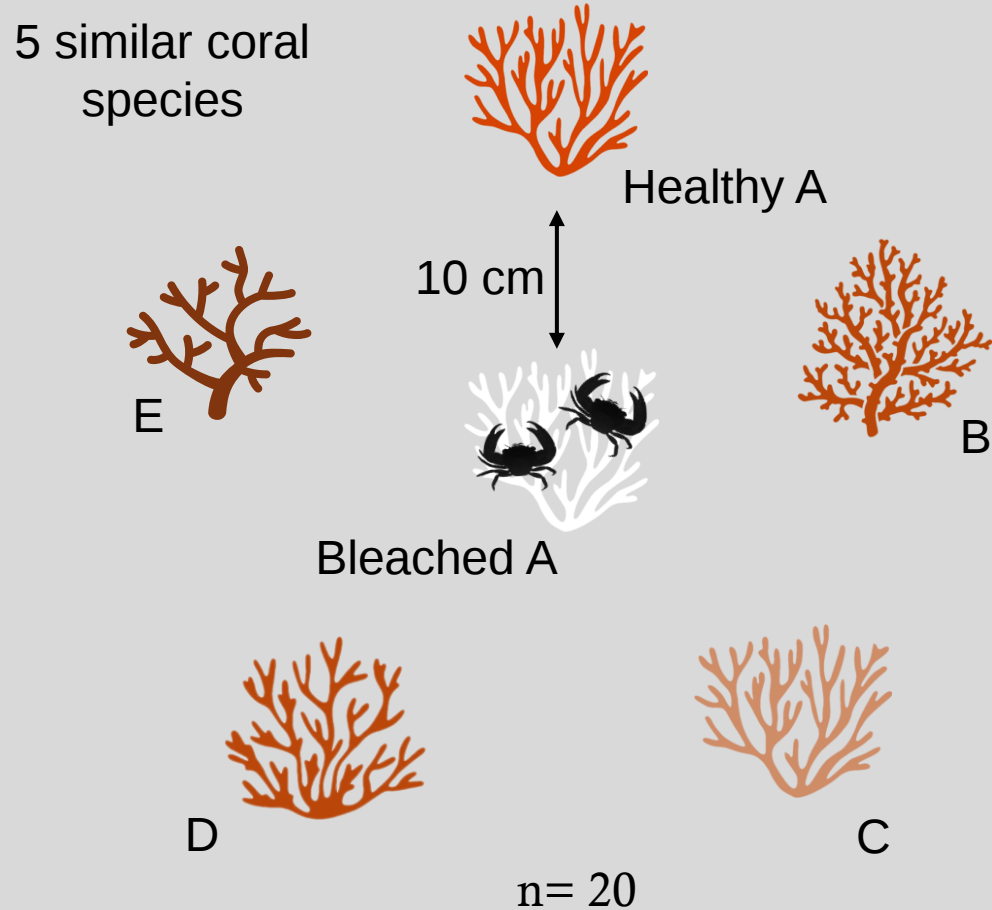
Hazardous or mediated host recognition



0: *P. acuta* bleached; 1: *P. verrucosa*; 2: *Montipora mollis*; 3: *P. acuta*; 4: *Pavona cactus*; 5: *Acropora hyacinthus*

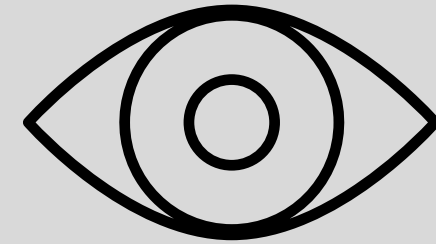
Results and discussion

Hazardous or mediated host recognition



Methods

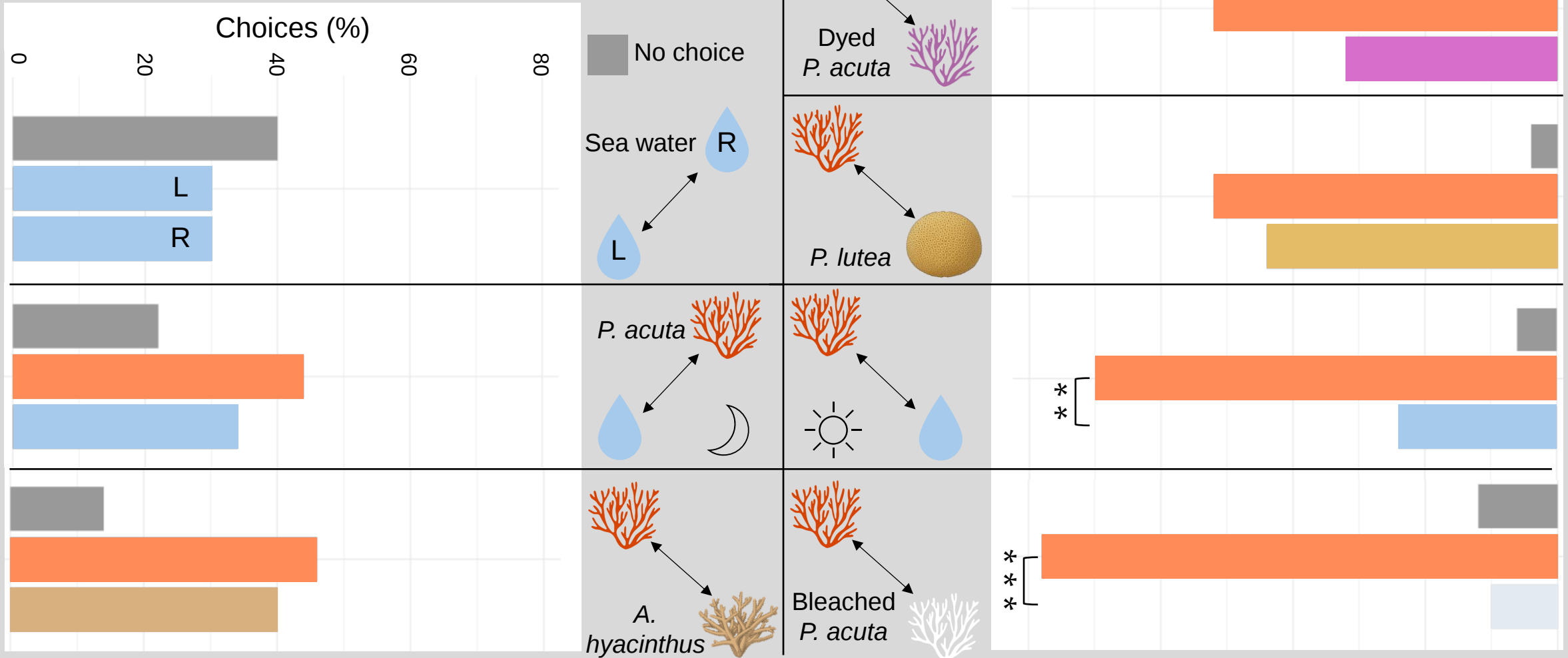
Specific host recognition: Visual cues



n= 20/condition

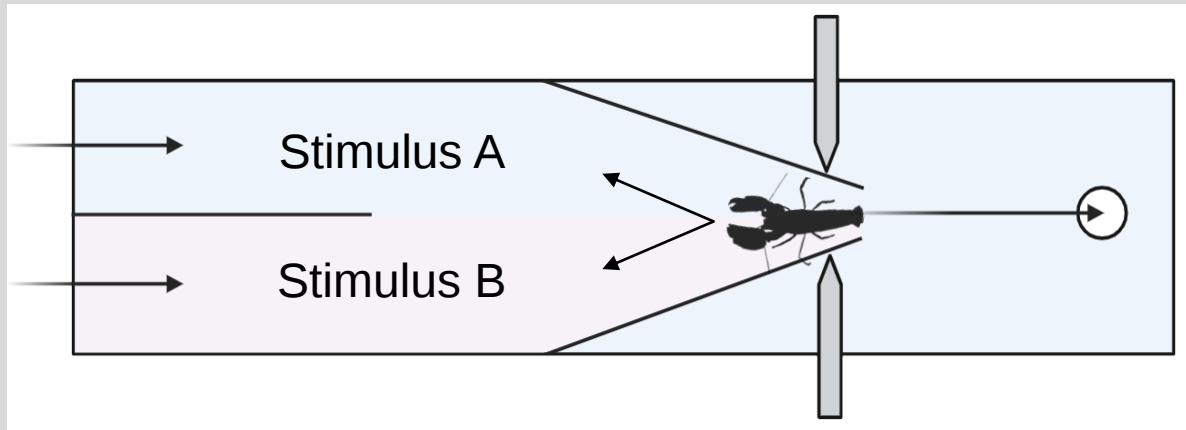
Results and discussion

Visual cues

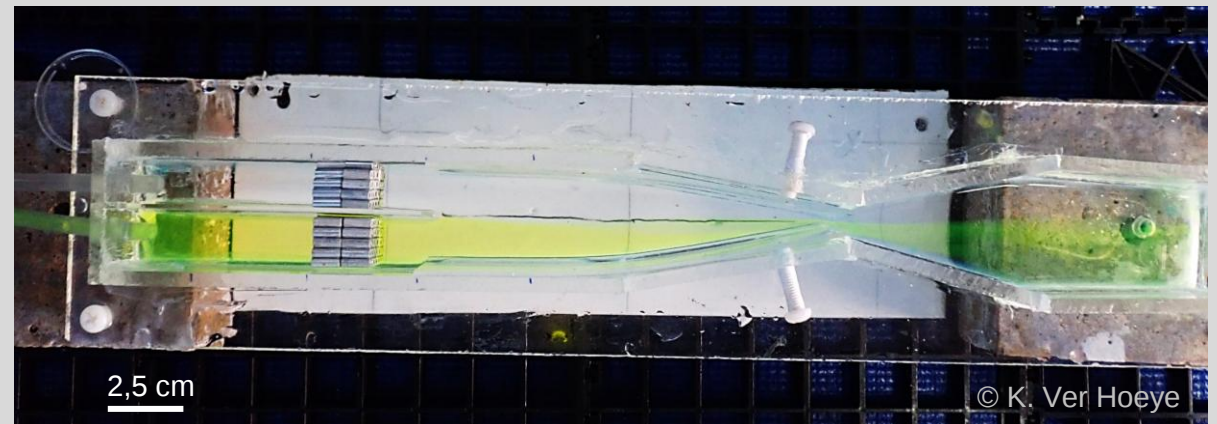


Methods

Specific host recognition: Olfactive cues

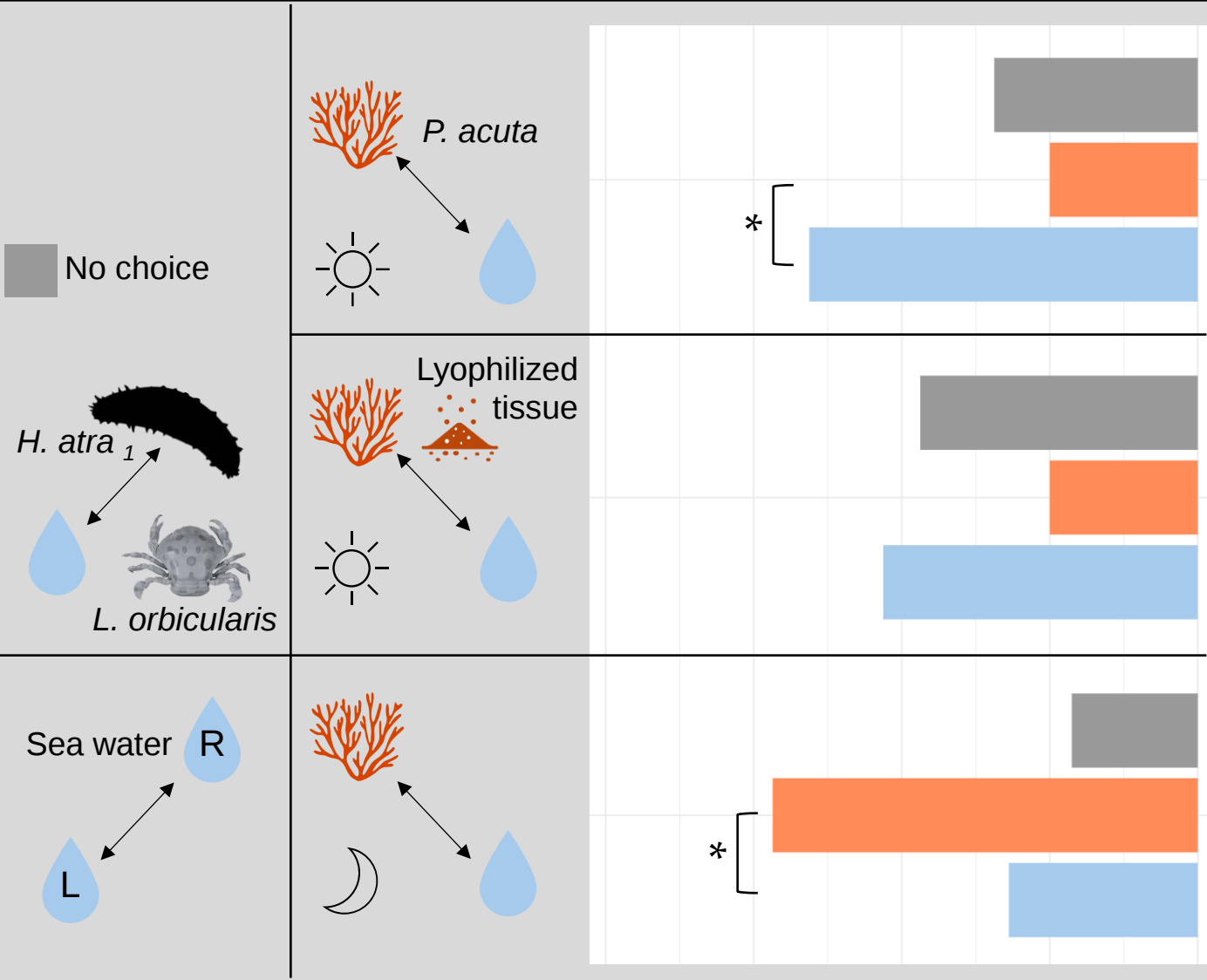
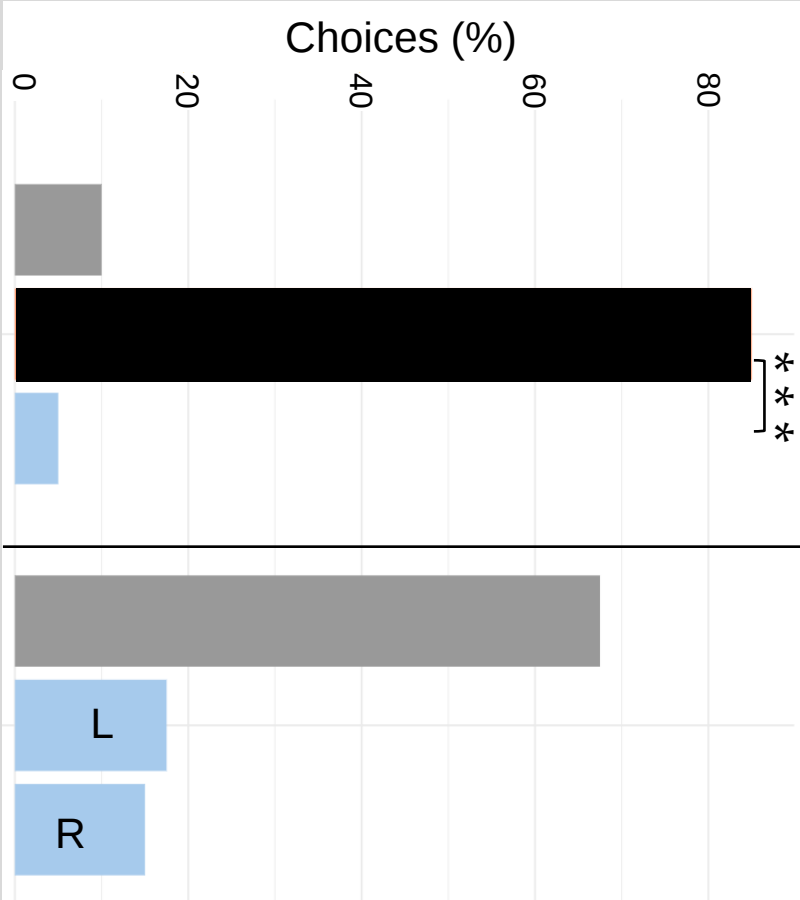


n= 20/condition

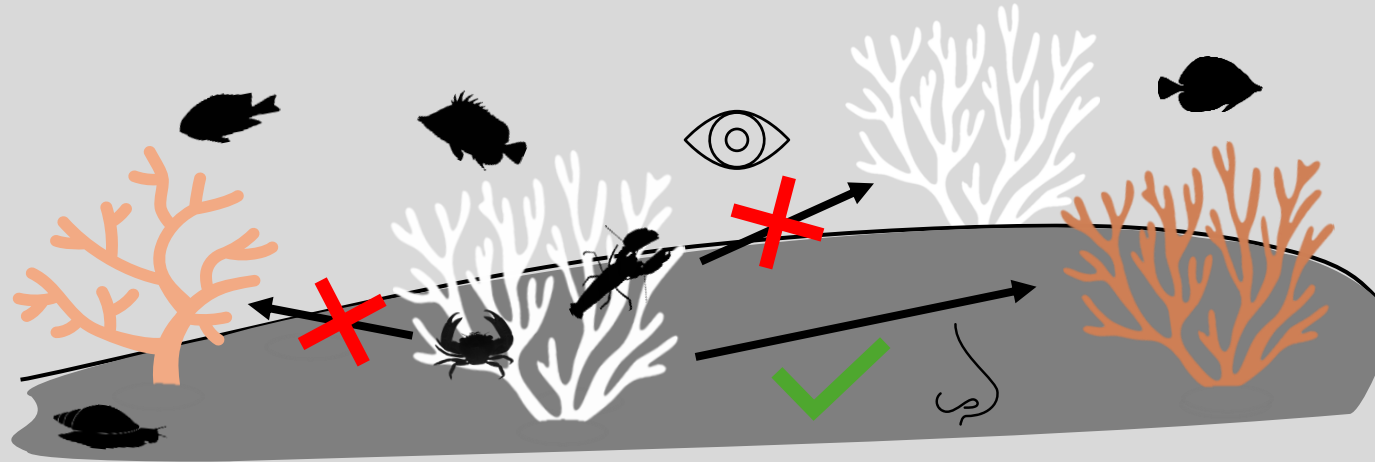


Results and discussion

Olfactory recognition



Take-Home Message



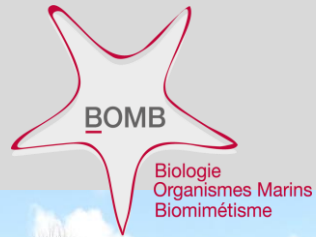
Next steps?

Which coral compounds are involved in this olfactory/chemical recognition?

Last cue to investigate: tactile cues 

Thank you!

Lab-Team



Internship students



E. Kim



P. Jaradin



References

- Stella, J., Pratchett, M., Hutchings, P., & Jones, G. (2011). Coral-associated invertebrates: Diversity, ecological importance and vulnerability to disturbance. In J. Gordon (Ed.), *Oceanography and Marine Biology* (Vol. 20115434). CRC Press. <https://doi.org/10.1201/b11009-3>
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- Caulier, G., Flammang, P., Gerbaux, P., & Eeckhaut, I. (2013). When a repellent becomes an attractant: harmful saponins are kairomones attracting the symbiotic Harlequin crab. *Scientific Reports*, 3(1), 2639.